

kutscherkonzept
the content enabler

PREMIERE – k.FES FIELD EXECUTION SYSTEM

The Revolutionary Process Boosters for
Onboarding, Operation and Maintenance
for SME, Offshore and Outdoor Works.



What Customers Really Want – New Realities

It is certainly boring to keep talking again about a shortage of skilled workers. But the ever faster emerging know-how gap as a result of the retirement of the boomers forces companies that depend on qualified employees to find new ways.

A today's typically shop-floor story sounds often enough the same: A young maintenance technician who is solely responsible for about 50 machines in a SME, since his older colleague has already retired. Of the 50 machines, about 75% are more than ten years old. Most of the documents, such as the machine book and operating / repair instructions, are available in printed form or as pdf and are stored „somewhere“ in the company.

Now he is to repair the control and regulation of the spindle drive on a ten-year-old lathe and he has no idea how. He can't find the necessary documents and has been on hold with the manufacturers „Hot Line“ for hours. Now good advice is literally expensive - long downtimes, loss of production, trouble due to delayed delivery and a lot of stress.

Many producers have not focused on this evolution for a long time, as other challenges seemed greater in the past. But for a few years now, the shortage of skilled workers has become an issue, especially with regard to the recruitment of young talent.

This change is therefore expressed more clearly than in the past in the demands placed on companies. The results of our market survey during EMO 2017 and 2019 show this clearly and declare four points by far as priorities.

It is obvious that the desire for better machines is no longer at the center of attention, but that safety, effectiveness and efficiency of work in direct connection with the human-machine interface is perceived as unappealing and should be urgently improved.



*Maintenance, Repair, Overhaul

Our Solution – Creating Digital Immortality

Our Field Execution System k.FES make work easier, reduce errors, increase productivity and value creation. In addition, k.FES provides your most important employees with digital immortality

k.FES meet the customer requirements perfectly and therefore we promise:

- up to 50 % better operating safety
- up to 90 % error-free operation
- up to 50 % less downtimes and shorter maintenance periods
- more than 25 % lower costs*

The core of k.FES is content.

To be more precise: the didactic and methodical transfer of all available information, including expert knowledge, into digital instructions for action.

Thus, the entire operational know-how of all knowledge carriers becomes immortal as digital information and can be accessed as assistance or guidance, easily, clearly and stress-free directly on site, e.g. from mobile devices.

All k.FES tools are custom designed for SMEs, small industrial companies, machine and plant manufacturers, as well as assembly and maintenance companies. Thanks to the intelligent use of resources, all Tools make a significant contribution to the decarbonization of production operations.

Wide range of applications

- Machine Operation
- Maintenance to DIN/ISO 31051 and DIN/ISO 13306
- Assembly
- Repairs
- Offshore and Outdoor Works
- Onboarding Processes
- Interim Trainings
- Education / Further training
- Product presentations



k.CONTENT | DIGITIZE . EDIT . PUBLISH

AI supported processes for digital transformation of all relevant information plus expert input.



k.ASSIST | DEMAND . ACT . RECORD

Real-time video connection app in on-site Android mobile devices as Smart Glass /-Phones and Tablets



k.DESK | SUPERVISE . ASSIST . MANAGE

Helpdesk support from an external expert and data hub for all stored and recorded action and information



k.LOG | COLLECT . STORE . CALL

Integrated digital, dynamic machine logbook for all machine data including Condition Monitoring Data



k.COMBI | Detect . Send . CALL

Linking of instructions for maintenance with direct dependency on current machine data



k.INSTRUCT | PREPARE . ELABORATE . DISTRIBUTE

App for didactically prepared content for onboarding, education and training.



Worker with Real Wear HMT-1 in onsite action

The Importance of Know-How Transformation

Talking about Industry 4.0, the SME shopfloor leads a niche existence. Actually the biggest problem there is the know-how gap resulting from the generation change, which cannot be compensated for with large, costly industrial systems.

We developed k.FES specifically for SMEs and their most important stakeholders: the employees.

Requirements for ease of implementation, ease of use, and low cost of ownership were also taken into account. To engage employees, it is essential to tell a positive story about the transformation. Thanks to our many years of experience in storytelling and change management, we can provide companies with optimal support in this regard.

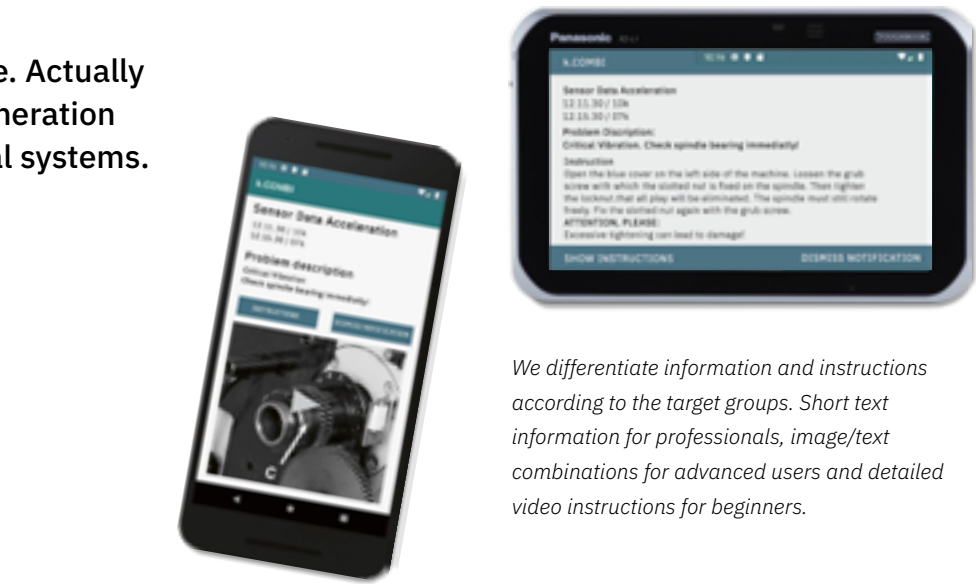
The digital transformation of information, instructions and data into authorized content requires both technical knowledge and skills in subject didactics, technical editing and content production. We are really good at this because we come from the engineering

sciences and not just from software development. Of course, this know-how is also present in companies, so companies can successfully implement the transformation on their own after only a short training with our tools.

Whenever it makes sense and is feasible, we recommend videos for knowledge transfer, as they are ideally suited to the learning habits of young people. To avoid misunderstandings - these are not Youtube DIY videos. Process-relevant content must be prepared, edited and finally released. Our tools facilitate this work immensely, but cannot replace your own editorial work.

We are the guys with the black fingernails.

We know how things work on the shop floor and what is really needed there.



We differentiate information and instructions according to the target groups. Short text information for professionals, image/text combinations for advanced users and detailed video instructions for beginners.



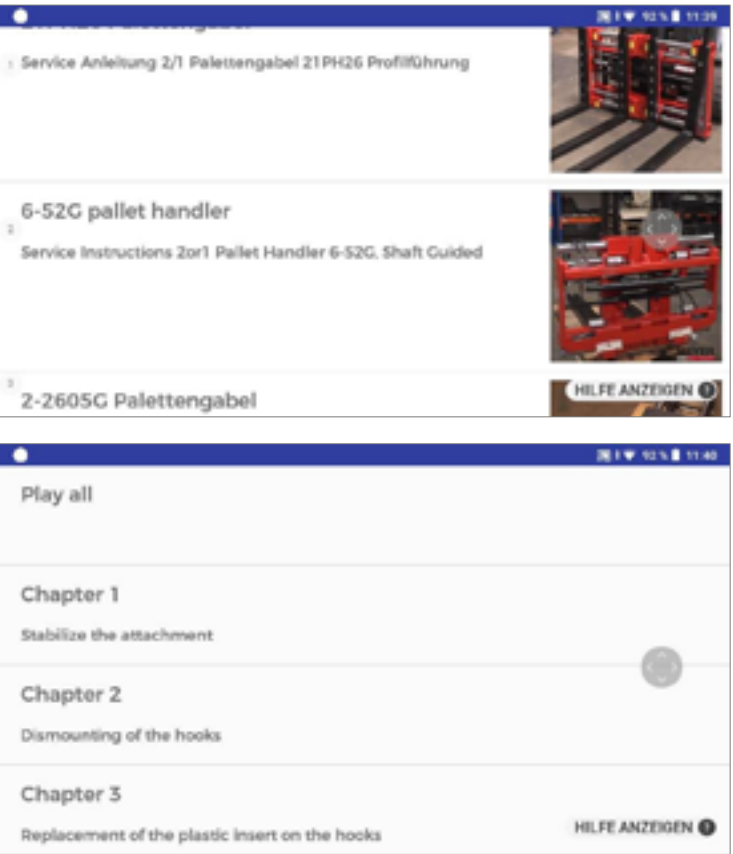
k.MEDIA – Integrated Video Editing Solution

Another example of the simplicity of k.FES is k.MEDIA, the included software, with which all videos can be edited very easily. For this it only needs the ability to transfer timecodes for the desired clip outs from a videoplayer into an Excel spreadsheet and give them chapter names. Via export and import, k.Media automatically cuts the videos and ports them in k.STORAGE, the database from where it can be retrieved 24/7 from our apps in mobile devices on location.

Excel spreadsheet for CSV export direct to video

Editor: Paul Muller, Edited May 08/22, authorized and released	05/12/2022
MEYER_Service_Video_6-52G .mp4	
Titel / Title	
2/1 Palettengabel 6-52G, Profilführung	
Pallet Handler 6-52G, Shaft Guided	
Kapitelnahme / Chapter name	
1 Standsicherung nicht vergessen	00:13:00 00:24:00
Stabilise the Attachment	
2 Demontage Pratzen	00:25:00 00:51:00
Dismounting of the Hooks	
3 Wechsel der Führungsschienen in den Pratzen	00:52:00 01:01:00
Replacement if the plastic Insert on the Hooks	
4 Austausch unteres Gleitstück	01:02:00 01:18:00
Replacement of the bottom Slidung Block	
5 Wechseln und einstellen der Gaskartusche	01:19:00 01:54:00
Replacement and Adjustment of the Power Cartridge	
6 Austausch der oberen Gleitelemente	01:55:00 03:31:00
Replacement of the upper Slider Pads	
7 Abschmieren der Gleitelemente	03:32:00 03:52:00
Greasing of the Sslide pads	
8 Montage des Anbaugerätes	03:53:00 05:24:00
	05:25:00 05:49:00
	05:50:00 09:02:00

To edit a video, all you need is Excel and our software, which does the rest automatically.



Spot on total cost of ownership – operation and maintenance matter

As mentioned earlier, productivity suffers when urgently needed information is not available at the workplace.

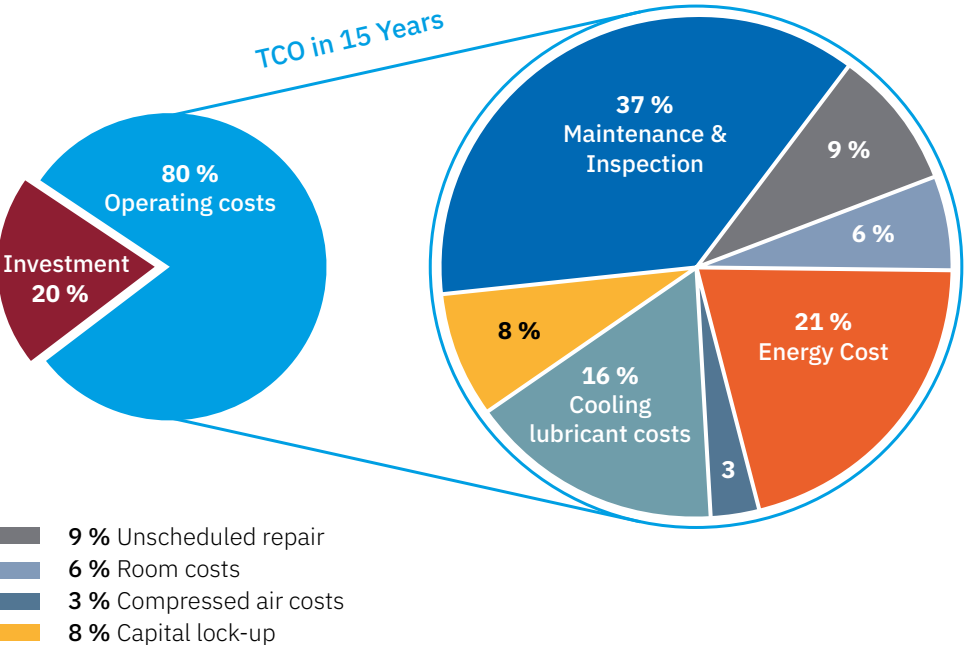
According to the Q_PERIOR study¹ from 2013, German industry alone loses up to 23 million working days searching for information in the workplace. This will be no better today. This gigantic loss can easily be avoided with intelligent transformation and easy retrieval of informa-

This can be achieved by significantly optimizing the cooperation between man and machine. This brings the issue of the know-how gap back into focus, which our concept of digital immortality of expert know-how can easily heal. With possible cost reductions of up to 25%, k.INSTRUCT is ideally suited for this purpose which applies to operation, assembly and repair, onboarding and training, when replacing employees in the event of

Our k.FES and its Tools k.LOG, k.INSTRUCT and k.ASSIST reduce operating costs on maintenance by more than 25 %.

tion. That's why our focus is on content transformation combined with easy and secure 24/7 access to information and instructions on the spot. Consequently, the system bundles all machine-specific information and expert statements in one application - the interactive, machine logbook k.LOG as a data hub. With 46% of total cost of ownership for maintenance and repair, the motivation to reduce these costs should be high.

illness or after a change of station. Digitally stored operating instructions protect valuable know-how and remain in-house even after knowledge workers leave. k.INSTRUCT is part of the k.LOG .and k.ASSIST technology (see next page).



- 9 % Unscheduled repair
- 6 % Room costs
- 3 % Compressed air costs
- 8 % Capital lock-up

At 46%, maintenance and repair account for almost half of all operating costs.

Smart assistance systems are the future of maintenance.

Hands free, free mind – Working with k.ASSIST

k.ASSIST runs on Android mobiles and allows on-site workers to call an expert from anywhere in the world and ask for help.

One click on the support icon on a smartphone/tablet or the voice command „Call Support“ on the Smartglass HMT-1, which we prefer because the worker has both hands free - and the connection to the expert is established. k.ASSIST includes the Windows client k.DESK, from which the expert hears and sees the same as the worker in real time. This enables him to provide optimum support. In addition to instructions, annotations can be placed in the live image, files can be sent and a chat function can be used. Through k.ASSIST, information can also be downloaded from k.LOG to any device if the worker does not need direct assistance.

USP k.ASSIST
The system is not browser-based and much more powerful and, above all, more secure than competitors' systems.

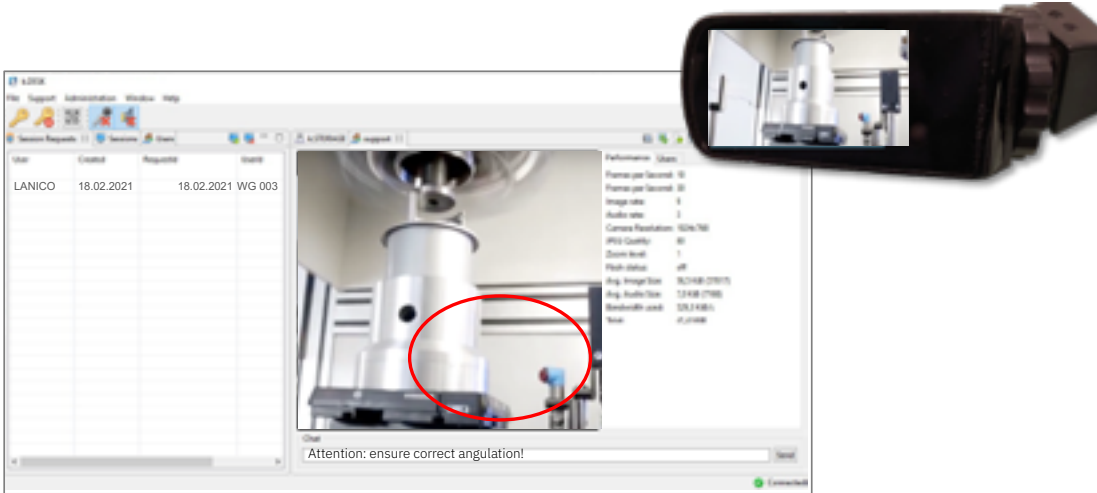
Nobody except the user and us can track or record the communication. Furthermore, the user can restrict the connection for sensitive areas via direct intervention to the helpdesk by a third party - e.g. plant security.



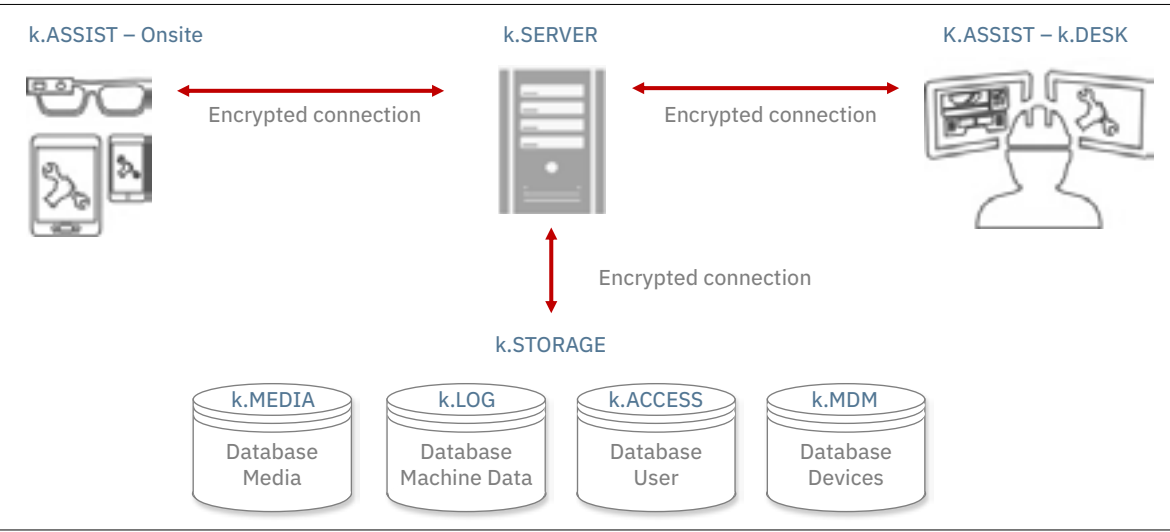
This all works very well and saves stress, time and costs - more than 50% including travel expenses.

All modules and apps of k.FES use this connection and server architecture as their basis.

Easy access – easy handling. Just say „call support“ and instantly You're on the right track.



Example of communication between k.REMOTE on Real Wear HMT-1 and k.DESK



¹Q_PERIOR AG: <https://www.presseportal.de/pm/101823/2490454>

Transparency, Flexibility and Scalability – is Core to the System

k.FES apps can be used alone or in conjunction. On the other hand they reach full potential in combination.

That helps companies on an easy-to-scale path to their digital shop floor. Our users decide for themselves which modules they want to use and to what extent. We provide support at every stage - from preparing the needed content to analyzing the digital status quo for hardware and software with the promise of leaving no one behind. Digitization with D.E.T. is beneficial for everyone – companies, employees, partners and customers.

Starting for example with k.ASSIST it can be used on its own with high benefits. However, since the helpdesk is indispensable for k.ASSIST, it would make sense to use its capabilities as well. This includes k.SERVER and k.LOG, the high-performance database in which media, machine-, user- and mobile device-data can be stored and retrieved.

The design of k.SERVER also allows the pairing with existing databases.

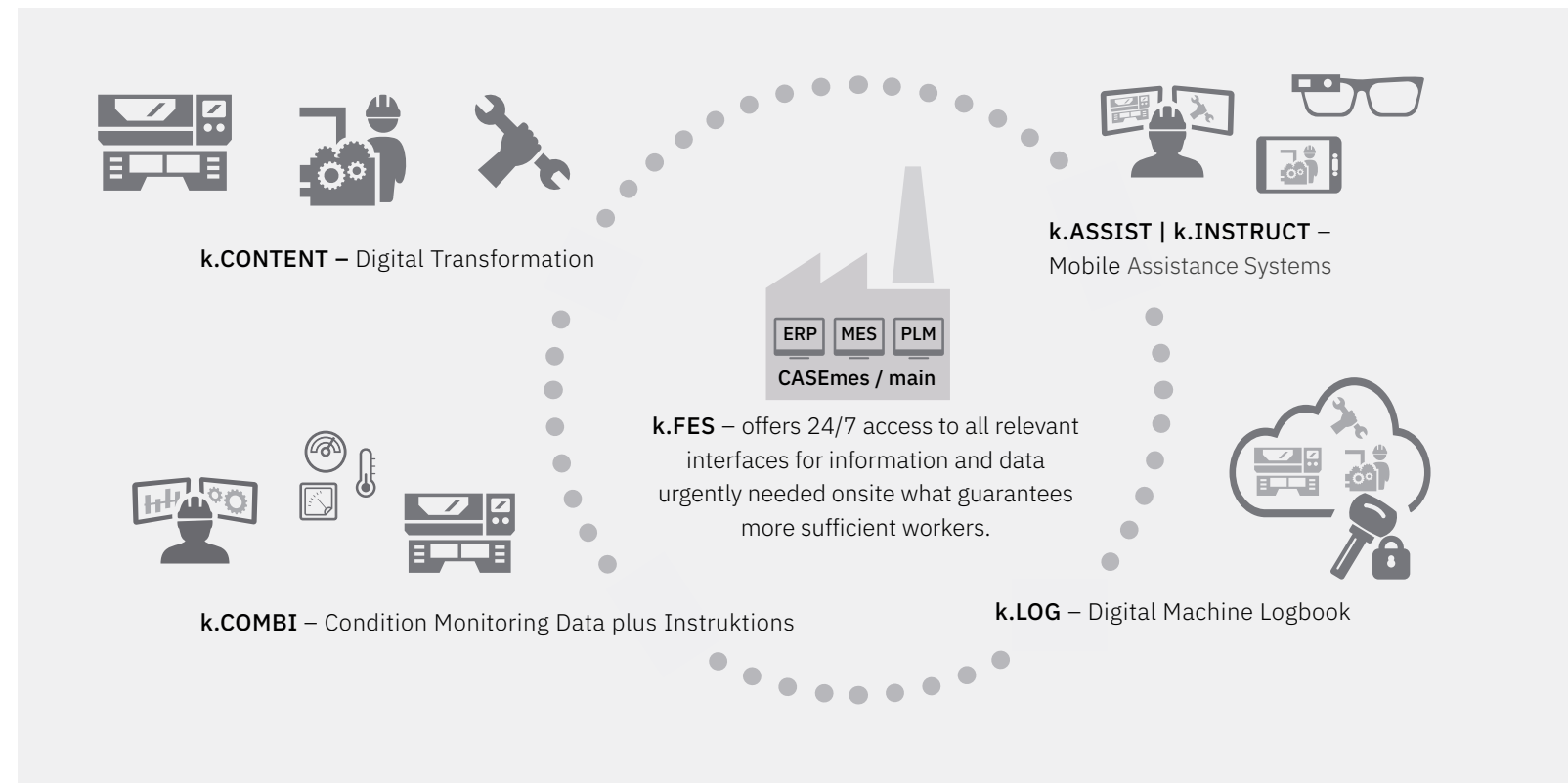
k.FES system architecture convinces with lean structure, high security and agility as well as easy handling of all apps and their peripherals. Another advantage of the system is its flexibility, which allows us to perfectly respond to customer requirements. Even in terms of white labeling. For example, even though we prefer a

cloud solution for k.SERVER / k.STORAGE, it can just as easily be integrated into a company's IT infrastructure or installed on a dedicated server. In any case, high communication quality is guaranteed.

As another element of the back end the integrated Mobile Device Management (MDM) simplifies usage of Android Mobile Devices. k.MDM means: We configure devices according to customer

k.SERVER can run in the cloud on a dedicated server or be integrated into in-house IT.

requirements and connect them to a user interface. Thus, each configuration – who uses which device, where, in which environment and with which contents and permissions – can be monitored and changed by an administrator at any time via k.DESK.



Smart Boosters for Higher Availability

k.COMBI and CASEmain significantly reduce maintenance downtime thanks to smart planning and integrated, condition-based instructions.

k.COMBI, Condition Monitoring Based Instructions has been developed specifically for SMEs to simplify and accelerate maintenance. k.COMBI and CASEmain make manufacturers less dependent on periodic or unexpected maintenance, which often leads to expensive downtime. k.COMBI prevents this by using predefined thresholds to report the need for maintenance in a time window that gives producers much more flexibility in planning.

Ideal combination of planning and execution. k.COMBI interacts ideally with the maintenance tracking tool CASEmain from our partner CASE-Deutschland. CASEmain is a maintenance manager that can be used to plan and document the maintenance of machines and systems. By including machine data, maintenance orders are generated event-driven. Ideally, the machine data is recorded via the OPC UA interface. If this is not yet available, as is common with older machines, sensor data can be recorded by a Raspberry PI, for example.

The configuration depends primarily on which sensors are installed and which status data are relevant for the customer.

The highlight - integrated instructions for action As soon as the need for action is identified, alarm messages are linked to requests and instructions for action. These can be in any digital form suitable for display in mobile devices. A real-time video connection for live assistance between mobile devices and an expert at the help desk is just as much a part of k.COMBI as the ability to retrieve relevant, digitized instructions (text, video, drawing, etc.) on-location 24/7. If requested, existing ticket systems can also be addressed or new ones can be integrated.

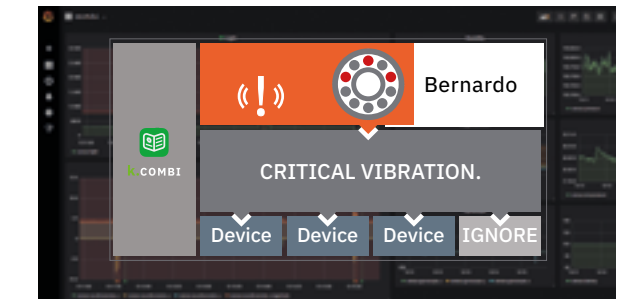
k.COMBI and CASEmain provide

- more efficient processes for maintenance and operation
- less stress and fewer errors
- shorter downtimes
- clearly lower maintenanc costs
- know how remains inhouse
- longer machine runtimes
- investment protection

Less stress, fewer errors, shorter operating times and clearly lower maintenanc costs.



Dashboard CASEmain, planning and documentation of maintenance made simple and convenient.



The alarm / event window opens automatically when a threshold value is exceeded.



Depending on the used mobile device and the requirements and wishes of the user, the instructions can be retrieved as text or video.

Big Changes Need a Great Story

Consulting for digital transformation

Digital transformation affects technologies, processes and above all the role of employees. A successful transformation without involving and motivating them for change could lead to strong friction. Questions about constant monitoring by smart glasses or fears of job loss as a result of rationalization should be answered positively: First and foremost, k.FES disentangle complex workflows, making them more transparent and reduce errors. In doing so, they prevent stress, lead to more satisfaction in the workplace and make companies more successful and competitive. As mentioned before to get this result, it needs a great story for great changes.

Due to our competencies and experience, we are the right partner in this area. To strengthen us in the area of software development, we have gained a very competent and experienced partner in CASE-Deutschland. They are at home in the world of automation technology, MES processes, control system design, software solutions and consulting services.

The partners combine mechanical engineering and digital transformation know-how with the stability and reputation of two companies that have been successful for a very long time. This solid basis combined with the innovative strength and agility of small companies gives customers the necessary security and dynamism to successfully shape the extensive changes in the context of digitalization.

Cost reduction and higher profit

- Increasing productivity
- Lower operating costs
- Up to 70% reduction of travel costs
- Shorter downtimes
- Better onboarding processes
- Uniform performance - e.g. by different or worse qualifications
- Easy overcoming of language barriers
- More satisfied employees
- Better chances in recruitment
- Greater affinity to young employees

New, profitable business models

- New After Sales Service models
 - New Sales concepts Incl. MaaS¹
 - Constant cash flow
 - Better customer loyalty
 - Invest in future viability
- ¹Machines as a Service

Benefits for Usage

- Easy installation
- Convenient handling
- Cool apps for mobile devices
- Tailored to customer needs
- Inexpensive in migration and license
- Highly available Support
- Future-proof system design

Our range of services

- Transformation consulting involving employees and work committees
- Specification of digital Status Quo
- Examination and analysis of existing data (print, manuals, pdf, CAD and MES)
- Digitization of know-how, data, operations and processes
- Setup Systems
- Setup of Backend, server- and cloud solutions
- Mobile Device Setup (MDM)
- Installing security system
- Training employees
- Launch system in production
- Maintain and hosting Backend
- Support

New After Sales Service models,
New Sales concepts, Constant
cash flow, better customer loyalty.

New After Sales Formula



k.ASSIST – a new business model

Since experts at the helpdesk see and hear the same things as employees, help/advice can be provided directly. Why does this work? In most cases, the company has employees who are perfectly capable of performing most maintenance or repair work with the appropriate technical support.

On the other hand, this method is also very helpful for external maintenance companies and even when own technicians need help. Inefficient of employees is eliminated or drastically reduced. The experts stay in-house and can handle several cases in one day instead of one case in several days (including travel time).

Service today: 3 to 1

1 service technician is usually on the road for up to 3 days for 1 maintenance assignment and is paid for one day onsite and half the wage for travelling.

New service with k.REMOTE: 1 to 5

1 service technician can help at least 5 customers in one day. Travelling expenses now are obsolete but just as important: The maintenance technician, who is normally one of the most experienced employees, can stay in the company and take over corresponding jobs in-house and that pays off.

For the first time this provides the option to sell After Sales Services using a SaaS licensing model and generates constant cash flow. Similar models can be realized for assembly scenarios.

#1

- * modern CNC machine tool, cost approx. 500,000 €
Usage 16 hrs. / day – malfunction: two shifts until repair
- ** ø Wage for machine manufacturers service technician 120.00 €
- *** 6 hours travel (half rate 60.00 €)plus 0,30 € / km - 2 rides
- **** Only first installation, see also proposal page 13

#2

- * ø Industrial wage 36.00 € plus incidental wage costs 36% = 49.00 €
- ** Complete operation unit of a machine tool of average complexity
- *** Assumed effort for content transformation for 1 machine typ

#1 Soforthilfe mit k.ASSIST

Machine malfunction	Euro
Average cost of downtime 1 machine (hourly rate 260.00 €/h x 16*)	4,160.00
Daily rate for onsite technician help** (120.00 €/h x 8)	960.00
ø Domestic travel expenses, 250 km radius***	410.00
ø Actual expenses	5,530.00
Technician help via k.REMOTE (ø 2 hours)	240.00
Reduced downtime max 8 hours	2,080.00
NEW expenses with k.REMOTE max.	2,320.00
Basic price k.REMOTE****	4,900.00
Amortization Rate after service calls	2.1

#2 Onboarding with k.INSTRUCT

Station change or initial training	Euro
Daily rate of technician trainer (8 hours) (internal charge rate*)	392.00
ø Initial training time / Daily rate per station / 10 days per technician**	348.00
ø Average effort trainer 5 days	1,960.00
Total cost per technician	5,440.00
Asumed effort content transformation***	9,800.00
Onboarding trainings per technician needed for amortization	1.8
Amortization for 2 technicians / 10 days	0.9

Potential Process Implementation in the Company

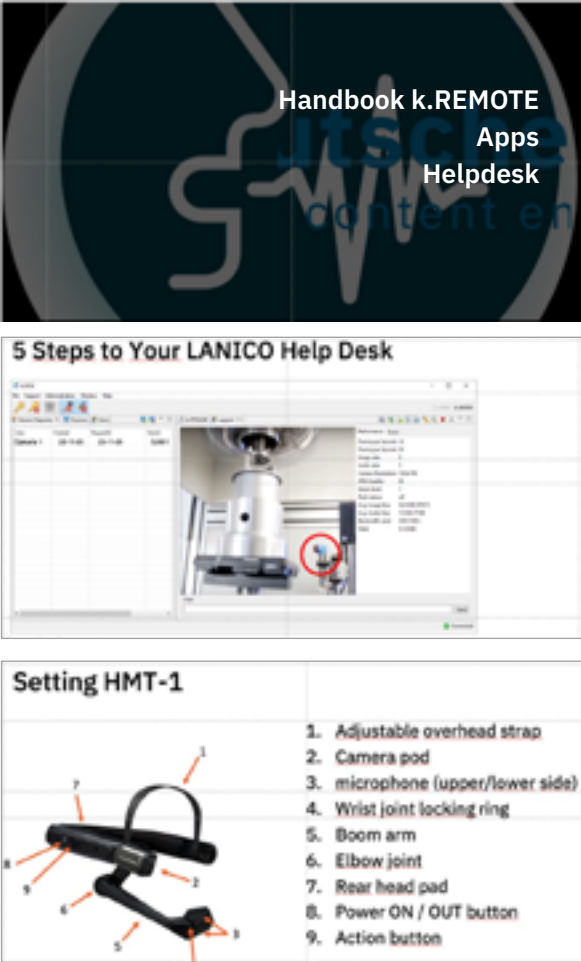
The procedure described here is to be understood as a suggestion for a possible implementation of the system - including digital transfer services. We recommend this approach, also to „bring along“ the employees.

But of course, k.REMOTE, for example, can also be implemented without a workshop and only as part of a short training course. An extensive manual which shows step by step how to install and use k.REMOTE is natural. Also a competent online support.

Our experience to date has shown that this approach does not fully exploit the system’s potential and can also lead to acceptance problems among employees and customers. „Hot topics“ such as employee monitoring, secrecy, and industrial espionage can thus take on too much importance and build up too high hurdles.

Our proposal for a Workshop

- Analysis of Status Quo of Digitization
- Analysis of currently used systems as ERP, PLM, MES and interfaces
- Analysis of conditions on site (machines / WLAN / Server etc)
- Identifying employees as early adopters
- Concept implementation and data migration
- Proposal for server solution
- Training of employees on apps, helpdesk and devices including datamanagement
- Training of employees in the area of digitization of historical data
- Launch System
- Concepts on Support and After Sales Services



Estimated Cost for an Iinitial Installation in a Pilot Project

The costs shown here correspond to a basic configuration and, at around 3,990.00 Euros, are significantly lower than the prices of our competitors, who sometimes offer neither workshops nor corresponding support. If k.ASSIST is used alone, license fees of 948.00 Euro / year are incurred. The license includes one user profile including three mobile devices and the helpdesk including all services as on page 7.

The price range for comparable systems e.g., Occulavis Share, starts from 1.200,00 Euro / year. The following applies: the offers are not completely comparable, as our offer is more extensive.

Another advantage of our solution is the possibility of white labeling.

Proposal Consulting	Quantity	Euro
Analysis of conditions on site (machines/ WiFi Network / Server etc.)	1 Tag	1,200.00
Workshop	1Tag	1,200,00
Concept and presentation	1,5 Tage	1,800,00
	EMO Special Price excluding travel expenses	3,990,00

Proposal Licenses	Quantity	Euro
Lizenz pro App	1 user, 3 mobile devices incl. Heldesk	79.00 / month 948.00 / year
2 Apps e.g. k.ASSIST und k.INSTRUCT	1 user, 3 mobile devices incl. Heldesk	149.00 / month 1,700.00 / year
	EMO Special Price first Installation / Setup	899.00/year

About CASE-Deutschland

CASE Germany is at home in the world of automation technology, MES procedures, design of control systems, software solutions and consulting services, up to commissioning and SOP.

In the rapidly developing industry and digitalization, we are as an independent system integrator we are able to effectively control complex technical systems.

We develop customized software and serve as independent consultants for your projects. Our brands are products that have been developed exclusively for your applications and have successfully proven themselves in the market.

We focus on long-term partnership, trust, transparency and professional communication. Our mission is to create profit-oriented benefits and generate added value for our customers, clients and partners.

We operate within a cross-industry network of companies of comparable size and complementary competencies.

Managed Outsourcing® accompanies your offshore software development in our subsidiary CASE Tunisia, in Sousse. This modular process for your software development is geared towards quality assurance, transparency and customized service - while reducing costs. The Offshore Readiness Assessment ensures that all your requirements are implemented with pinpoint accuracy.

Excerpt of our references

- Robert Bosch GmbH
- Volkswagen AG
- Sumitomo SE
- Auerswald GmbH & Co. KG
- Almex GmbH
- Wulff-Med GmbH



Founder and Owner
Mechanical Engineer Dr. Mourad Choikha

About kutscherkonzept

We have been working successfully as a small, highly qualified, efficient team since 2000, serving customers from industry and SMEs in Germany, Switzerland and Italy in the markets

- Mechanical engineering
- Manufacturing processes
- Automotive
- Railway technologies
- Technical services

As an engineering scientist and communications specialist, Detlev Kutscher has focused on communicating complex technical content since the company was founded in 2000. This focus ultimately led to the development of k.FES.

The initial development was triggered in 2015 by an order from Reishauer AG to produce an operating video for General Motors for a grinding machine. This video was so successful and is still in use today, that we decided to focus on the digitalization of the human-machine interface, also as a result of the technical development

in software and hardware and the new possibilities that arose from this.

In the participation in several research projects, our system has successfully passed the high requirements of innovativeness and originality in each „proof of concept and practice“ and found its way into the project outlines of the mechanical engineering departments of:

- TU Clausthal
Institute for Software and Systems Engineering
- Ostfalia University Wolfenbüttel of Applied Sciences,
- Hanover University of Applied Sciences
- Fraunhofer IPK, Berlin.

Since mid-2022, we have been continuously developing our system in close cooperation with DIGIT, Center for Digital Technologies, at the TU Clausthal and will present these revolutionary developments at the EMO 2023 first..

Excerpt of our references

- Volkswagen Group Services GmbH
- Autovision GmbH
- Wolfsburg AG
- Siemens AG, Mobility
- Siemens AG, Mining Industry
- Balfour Beatty Rail GmbH
- MAN Truck & Bus SE
- Sennheiser GmbH & Co. KG
- Winterthur Technology AG (CH)
- 3M Grinding Division, (CH)
- Kellenberger AG, Switzerland (CH)
- Bolzoni Group, SPA, (IT)



Founder and owner
Engineering scientist Detlev Kutscher

kutscherkonzept

Wilhelmitorwall 3
D-38118 Braunschweig
www.kutscherkonzept.de

fon +49 531 2088520
fax +49 531 2088522

CASE-Deutschlang
Grüner Ring 126
38108 Braunschweig
www.case-deutschland.de

fon +49 531 237 68 8-02
fax +49 531 2088522

CONTACT

Detlev Kutscher
kutscher@kutscherkonzept.de

Dr. Mourad Choikha
m.chouikha@case-deutschland.de

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Credits

Cover istock foto

Page 2 - 9, 15 kutscherkonzept

Page 09, 14 CASE